REMARKS

This amendment is responsive to the non-final Office Action mailed on December 13, 2005. Claims 1-23 were pending before the amendment, claims 2 and 13 have been cancelled, and claims 1, 3, 6, 8-11, 14, 17-19, 22, and 23 have been amended. In view of the foregoing amendments, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

Rejections of Claims Under 35 U.S.C. § 102

Claims 1, 2, 4, 5, 9, and 10 stand rejected under 35 U.S.C. § 102(e) as anticipated by Lyons et al. (U.S. Patent No. 6,790,790), hereinafter *Lyons*. Of the rejected claims, claim 1 is the only independent claim and claim 2 has been cancelled. The Office Action contends that *Lyons* shows or teaches all the elements of the rejected claims. Applicants respectfully traverse this contention.

Applicants have amended claim 1 to set forth that the dielectric material comprises "a plurality of fluorinated carbon nanostructures." The Office Action admits on page 4 that *Lyons* fails to teach a dielectric material including carbon nanostructures that are fluorinated. If the reference fails to teach even one of the claimed elements, the reference does not and cannot anticipate the claimed invention. Consequently, Applicants respectfully request that the rejection be withdrawn.

Because claims 4, 5, 9, and 10 depend from independent claim 1, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, these claims recite unique combinations of elements not disclosed or suggested by *Lyons*.

Rejection of Claims Under 35 U.S.C. § 103

Claims 7, 8, 11-13, 15, 16, and 18-23

Claims 7, 8, 11-13, 15, 16, and 18-23 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Lyons* in view of U.S. Pub. No. 2004/0169281 to Nguyen et al., (hereinafter

Nguyen). Of the rejected claims, claim 11 is the only independent claim and claim 13 has been cancelled. The Examiner contends that it would have been obvious to modify *Lyons* to correct these deficiencies in view of *Nguyen*. Applicants respectfully disagree.

Because Applicants' claims 7 and 8 depend from independent claim 1, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, claims 7 and 8 recite unique combinations of elements not disclosed or suggested by the combination of *Lyons* with *Nguyen*.

With regard to Applicants' independent claim 11, *Nguyen* fails to remedy the deficiency of *Lyons* because *Nguyen* also fails to disclose or suggest a dielectric material comprising fluorinated carbon nanostructures. Because of this unremedied deficiency in the combined disclosures of *Lyons* with *Nguyen*, assuming *arguendo* that these references may be properly combined, Applicants submit that the Office Action fails to properly support a case of *prima facie* obviousness. For at least this reason alone, Applicants request that the rejection of independent claim 11 be withdrawn.

Because claims 12, 15, 16, and 18-23 depend from independent claim 11, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, claims 12, 15, 16, and 18-23 recite unique combinations of elements not disclosed or suggested by *Lyons* in combination with *Nguyen*.

Claims 7, 8, 11, 12, 15, 16, and 18-23 are patentable for additional reasons. Specifically, the Office Action fails to provide any suggestion or motivation to combine *Lyons* with *Nguyen*. The prior art must teach the desirability of a combination or a modification. *See* § MPEP 2143.01. Consequently, in the absence of a proper motivation or suggestion to combine these references, Applicants submit that the Office Action fails to support a case of *prima facie* obviousness. For at least this additional reason, Applicants request that the rejection of claims 7, 8, 11-13, 15, 16, and 18-23 be withdrawn.

Claims 3 and 6

Claims 3 and 6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Lyons* in view of U.S. Pub. No. 2002/0130407 to Dahl et al., (hereinafter *Dahl*). Applicants have amended independent claim 1 to set forth that the dielectric material comprises a plurality of fluorinated carbon nanostructures. As remarked above, the Office Action admits that *Lyons* fails to disclose a dielectric material having carbon nanostructures that are fluorinated. The Examiner contends that it would have been obvious to modify *Lyons* to correct this deficiency in view of the disclosure of a fluorinated amorphous carbon film in *Dahl*. Applicants respectfully disagree.

Applicants submit that the Office Action fails to provide a sufficient motivation or suggestion to modify the dielectric material disclosed in *Lyons* in the manner proposed by the Examiner. *Dahl* discloses of a low-k dielectric material consisting of a fluorinated amorphous carbon film deposited using a chemical vapor deposition process. However, *Dahl* fails to provide a motivation or suggestion to form a dielectric material that includes fluorinated carbon nanostructures. A carbon nanostructure, as taught by *Lyons* and as understood by a person having ordinary skill in the art, is characterized by nanometer size constituent building blocks, such as nanotubes or buckyballs, having an ordered arrangement of atoms. In contrast, an amorphous carbon film, as taught by *Dahl*, is not characterized by a nanostructure because the amorphous carbon film lacks nanometer size constituent building blocks in its structure. Instead, as the name suggests, a person having ordinary skill in the art would understand that an amorphous carbon film is a carbon film that lacks definite form or is shapeless. *See, e.g.*, American Heritage Dictionary, 3rd Ed. at p. 45 (1997). Moreover, *Dahl* fails to disclose or suggest that the CVD growth process forming a fluorinated amorphous carbon film would be effective to synthesize fluorinated carbon nanostructures or to even fluorinate synthesized carbon nanostructures. As mentioned above, a requirement of *prima facie* obviousness is that the prior art must teach the desirability of a combination or a modification. *See* § MPEP 2143.01. The mere fact that references can be combined or modified does not render the resultant combination or modification obvious unless the prior art also suggests the desirability of the combination. In

re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in the original). For at least these reasons, Applicants submit that claim 1, as amended, is patentable over this combination of references.

Claims 3 and 6 depend from independent claim 1. Consequently, claims 3 and 6 are patentable for at least the same reasons as claim 1 as the Office Action fails to properly support a case of *prima facie* obviousness. Moreover, claims 3 and 6 recite unique combinations of elements not disclosed or suggested by *Lyons* in combination with *Dahl*.

Claims 14 and 17

Claims 14 and 17 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Lyons* in view of *Nguyen* and further in view of *Dahl*. Applicants have amended independent claim 11 to set forth that the dielectric layer comprises a plurality of fluorinated carbon nanostructures. The Examiner admits that the combination of *Lyons* and *Nguyen* fails to disclose a semiconductor structure having a dielectric layer with carbon nanostructures that are fluorinated. The Examiner contends that it would have been obvious to modify *Lyons* and *Nguyen* to correct this deficiency in view of the disclosure of a fluorinated amorphous carbon thin film in *Dahl*. Applicants respectfully disagree.

Applicants submit that independent claim 11, as amended, is patentable over the combined disclosures of *Lyons, Nguyen* and *Dahl* for at least the same reasons that independent claim 1 is patentable over the combination of *Lyons* with *Dahl*.

Claims 14 and 17 depend from independent claim 11. Consequently, claims 14 and 17 are patentable for at least the same reasons as independent claim 11 because the Office Action fails to properly support a case of *prima facie* obviousness. Moreover, claims 14 and 17 recite unique combinations of elements not disclosed or suggested by *Lyons* and *Nguyen* further in view of *Dahl*.

Moreover, the Examiner should withdraw the rejection of claims 14 and 17 for at least the same reasons set forth above regarding the improper combination of *Lyons* with *Dahl*.

Specifically, the rejection of claims 14 and 17 is improper because the Office Action attempts to combine *Lyons* and *Nguyen* without a proper motivation or suggestion to combine, as remarked above. Moreover, Applicants submit that Applicants' independent claim 11 is patentable over the combination of *Lyons* in view of *Nguyen* and *Dahl* for at least the same reason.

Conclusion

Applicants have made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing amendments and remarks, this application is submitted to be in complete condition for allowance and, accordingly, a timely notice of allowance to this effect is earnestly solicited. In the event that any issues remain outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicants do not believe fees are dues in connection with filing this communication. If, however, any fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,

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Date

William R Allen
William R. Allen, Ph.D.
Reg. No. 48,389
WOOD, HERRON & EVANS, L.L.P.
2700 Carew Tower
441 Vine Street
Cincinnati, Ohio 45202
Telephone: (513) 241-2324
Facsimile: (513) 241-6234

